



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/803,469	03/10/2001	Robert E. Sobol	10005185-1	7249

7590 03/12/2004

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P. O. Box 272400
Fort Collins, CO 80527-2400

EXAMINER

SHERALI, ISHRAT I

ART UNIT	PAPER NUMBER
----------	--------------

2621

DATE MAILED: 03/12/2004

5

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/803,469

Applicant(s)

SOBOL ET AL.

Examiner

Sherali Ishrat

Art Unit

2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-41 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 March 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Drawings

1. The petition to accept photograph(s) (color prints) filed under (37C.F.R 1.84(b)) is granted. Three copies of each of the color prints have been received.
2. The drawings are objected to under 37CFR 1.83(a). The drawings must show every feature of the invention specified in claims. Therefore, the steps of the claimed method must be shown. Drawing does not illustrates any steps of the claims 1-41. No new matter should be entered.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 24-41 are rejected under 35 U.S.C 112, first paragraph, as failing to comply with written description requirement. The claim(s) contain subject matter which was not described in the specification.

Regarding claims 24 and 33, in lines 1-9, the claim recite "A method of improving an apparatus that sequentially determines a comparative measure of radiance information for providing a new intermediate value of each such measure in response to the product of ratio function of the radiance information associated with each of a first

Art Unit: 2621

segment area and with each of a second named segment are and a like measure previously determined for the second named segmented area, and determining a sequential new value of each said measure in response to a selectively weighted averaging of the new intermediate value and a like measure previously determined for the first named segment area". The specification says nothing about these features, and appears to be stretched excessively than what is being disclosed, and thus the claimed features lack support in the specification. Claims 25-32 and 34-41 are dependent on claims 24 and 33. Therefore they are also rejected.

5. Claims 9-13, 18-22, 28-32 and 37-41 are rejected under 35 U.S.C 112, first paragraph, as failing to comply with enablement requirement. The claim(s) contain subject matter which was not described in the specification to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same.

Regarding claims 9, 18, 28 and 37, they recite "multiple tables are used to modify, the small contrast difference and modify the maximum contrast differences in the original image as function of the distances between different areas". Specification discusses in the form of abstract multiple tables on page 9, lines 8-10 and page 10, lines 10-12. However the specification does not show the multiple tables or any table and does not give detail how these tables are derived or constructed. Claims 10-13, 19-22, 29-32 and 38-41 are dependent on claims 9, 18, 28 and 37. Therefore they are also rejected.

Regarding claims 10-13, 19-22, 29-32 and 38-41, they recite "the slope of the look-up tables are one to one for large distance and the slope of the look up tables is larger than one to one for small distances", "slope of look tables are less than one-to one for small distances between the different areas", "dead band close to the in the lookup table only for small distance between the different area", "slope of the look up table is different for each different distances between different area of the original image". Specification discusses in the form of abstract multiple tables on page 9, lines 8-10 and page 10, lines 10-12. However specification does not show the multiple tables or any table and specification discusses in the form of abstract "slope of look tables are less than one-to one for small distances between the different areas", "dead band close to origin in the lookup table only for small distance between the different area", "slope of the look up table is different for each different distances between different area of the original image". However the specification does not give detail description of how the table (s) is/are derived in which slope of look tables are less than one-to one for small distances between the different areas, dead band close to origin in the lookup table only for small distance between the different area, slope of the look up table is different for each different distances between different area of the original image.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 2621

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-2 are rejected under 35 USC § 102 (b) as being anticipated by Rahman et al. (Multi-scale retinex for color image enhancement, IEEE 0-7803-3258).

Regarding claim 1, Rahman discloses A method of changing the dynamic range of an original image to match closely match the dynamic range of the medium used for a reproduction (See Rahman, Abstract "color rendition" changing the dynamic range of an original image to match closely match the dynamic range of the medium used for a reproduction); comprising

discloses modifying the contrast difference between different areas of the original image (See Rahman, page 1004, paragraph 2, lines 33-37, Rahman show "graying of areas of constant intensity" , In the system of Rahman graying of constant intensity modifying the contrast difference between different areas of the original image, Rahman is modifying areas of constant intensity [extremely low contrast] by graying [inducing difference in intensities] different areas of image),

as a function of the distance between the different areas (See Rahman, page 1004, paragraph 2, lines 33-37, Rahman shows "graying of areas of constant intensity occurs because the retinex process enhances each color band as function of its surround" Rahman shows enhancing contrast of each color as a function of its surround i.e Rahman is enhancing contrast of surrounding/neighborhood [small distance] pixels/area).

Art Unit: 2621

Regarding claim 2, Rahman discloses the contrast differences are preserved for large distances between the different areas (See Rahman, page 1004, paragraph 2, lines 33-37, Rahman shows "graying of areas of constant intensity occurs because the retinex process enhances each color band as function of its surround" Rahman shows enhancing contrast of each color as a function of its surround i.e Rahman is enhancing contrast of surrounding/neighboring [small distance] pixels/area, since Rahman shows to enhancing contrast of surrounding/neighboring areas/pixels thereby Rahman is preserving the contrast differences for large distances between the different areas) and ,

the contrast differences are enhanced for small distances between the different areas (See Rahman, page 1004, paragraph 2, lines 33-37, Rahman shows "graying of areas of constant intensity occurs because the retinex process enhances each color band as function of its surround" Rahman shows enhancing contrast of each color as a function of its surround i.e Rahman is enhancing contrast of surrounding/neighboring [small distance] pixels/area).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2621

8. Claims 3-9, 14-18, 23-28, 33-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rahman et al. (Multi-scale retinex for color image enhancement, IEEE 0-7803-3258) in view of Frankel et al. (US 4,384,336).

Regarding claim 3-4, 7-8, 16-17, 26-27 and 35-36 Rahman does not explicitly disclose contrast difference are reduced for small distance between areas and very small contrast difference are substantially eliminated only for small distance between the different areas.

In the same field of endeavor Frankel disclose contrast differences are reduced for small distances between areas (See Frankel, col. 21, lines 16-23, "illustrated threshold function is such that all input values between (-2) and (+2) units inclusive produces the same out put value, such a threshold yield a ratio of unity when the two radiance values [contrast difference] being compared are within a specified percent of each other. This threshold removes the spatially slow changing effects of illumination", i.e Frankel is reducing contrast differences for small distance by removing spatially slow changing effects [small contrast differences for small distances]

very small contrast difference are substantially eliminated only for small distance between the different areas (See Frankel, col. 21, lines 16-23, "illustrated threshold function is such that all input values between (-2) and (+2) units inclusive produces the same out put value, such a threshold yield a ratio of unity when the two radiance values [contrast difference] being compared are within a specified percent of each other" i.e Frankel is eliminating very small contrast difference for small distances).

Therefore it would have been obvious to one having ordinary skill in the art at time the invention was made to reducing/eliminating contrast differences for small distance as shown by Frankel because such a process provide elimination or reduction of false contrast differences between neighboring pixels/areas.

Regarding claim 5, 14, 23, Rahman discloses A method of changing the dynamic range of an original image to match closely match the dynamic range of the medium used for a reproduction (See Rahman, Abstract "color rendition" changing the dynamic range of an original image to match closely match the dynamic range of the medium used for a reproduction); comprising

discloses modifying the contrast difference between different areas of the original image (See Rahman, page 1004, paragraph 2, lines 33-37, Raman show "graying of areas of constant intensity" , In the system of Rahman graying of constant intensity modifying the contrast difference between different areas of the original image, Rahman is modifying areas of constant intensity [extremely low contrast] by graying [inducing difference in intensities] different areas of image),

as a function of the distance between the different areas (See Rahman, page 1004, paragraph 2, lines 33-37, Rahman shows "graying of areas of constant intensity occurs because the retinex process enhances each color band as function of its surround" Rahman shows enhancing contrast of each color as a function of its surround i.e Rahman is enhancing contrast of surrounding/neighboring [small distance] pixels/area).

Rahman has not explicitly disclose limiting the maximum contrast differences between different area of the original input image.

In the same field of endeavor Frankel discloses limiting the maximum contrast differences between different area of the original input image (See Frankel, col. 10, lines 54-56, "to reset each resultant ratio of radiance of paired of pixels which exceeds the maximum value" and in Figures 1A-1D Frankel shows the ratio of neighboring pixels are compared, the ratio of radiance of paired pixel with maximum contrast difference will have a value exceeding maximum value which is resetted in the system of Frankel therefore Frankel shows limiting the maximum contrast and Frankel in figures 1A-1D comparing neighboring pixels which have small distance i.e Frankel is limiting the maximum contrast of pixels of small distances);

Therefore it would have been obvious to one having ordinary skill in the art at the time invention was made to limit the maximum contrast differences between different area [neighboring] of the original input image as shown by Frankel because such a process provide a system for mapping of dynamic range from one image display device to other display device with limited dynamic range.

Regarding claim 6, 15, 25, and 34 Rahman discloses the contrast differences are preserved for large distances between the different areas (See Rahman, page 1004, paragraph 2, lines 33-37, Rahman shows "graying of areas of constant intensity occurs because the retinex process enhances each color band as function of its surround" Rahman shows enhancing contrast of each color as a function of its surround i.e Rahman is enhancing contrast of surrounding/neighboring [small distance] pixels/area,

Art Unit: 2621

since Rahman shows to enhancing contrast of surrounding/neighboring areas/pixels thereby Rahman is preserving the contrast differences for large distances between the different areas)

and ,

the contrast differences are enhanced for small distances between the different areas (See Rahman, page 1004, paragraph 2, lines 33-37, Rahman shows "graying of areas of constant intensity occurs because the retinex process enhances each color band as function of its surround" Rahman shows enhancing contrast of each color as a function of its surround i.e Rahman is enhancing contrast of surrounding/neighboring [small distance] pixels/area).

Regarding claim 9, 18, 28, and 37, Frankel discloses multiple look up tables to modify the small contrast differences and modify the maximum contrast differences as a function of distance between different area (See Frankel figures 4-5 shows multiple look-up to modify the small contrast differences and modify the maximum contrast differences as a function of distance between different area).

Regarding claims 24 and 33, Rahman discloses modifying the contrast difference of the ratio function (See Rahman, page 1004, paragraph 2, lines 33-37, Raman show "graying of areas of constant intensity" , In the system of Rahman graying of constant intensity modifying the contrast difference between different areas of the original image, Rahman is modifying areas of constant intensity [extremely low contrast] by graying [inducing difference in intensities] different areas of image and Rahman in page 1003,

Art Unit: 2621

paragraph 2, lines 1-3, Rahman shows ratios in the form log subtraction which is same ratio of different area),

as a function of the distance between the different areas (See Rahman, page 1004, paragraph 2, lines 33-37, Rahman shows "graying of areas of constant intensity occurs because the retinex process enhances each color band as function of its surround" Rahman shows enhancing contrast of each color as a function of its surround i.e Rahman is enhancing contrast of surrounding/neighborhood [small distance] pixels/area).

Rahman has not explicitly disclose limiting the maximum contrast differences of ratio function.

In the same field of endeavor Frankel discloses limiting the maximum contrast differences between different area of the original input image (See Frankel, col. 10, lines 54-56, "to reset each resultant ratio of radiance of paired of pixels which exceeds the maximum value" and in Figures 1A-1D Frankel shows the ratio of neighboring pixels are compared, the ratio of radiance of paired pixel with maximum contrast difference will have a value exceeding maximum value which is resetted in the system of Frankel therefore Frankel shows limiting the maximum contrast and Frankel in figures 1A-1D comparing neighboring pixels which have small distance i.e Frankel is limiting the maximum contrast of pixels of small distances);

Therefore it would have been obvious to one having ordinary skill in the art at the time invention was made to limit the maximum contrast differences between different area [neighboring] of the original input image as shown by Frankel because such a

Art Unit: 2621

process provide a system for mapping of dynamic range from one image display device to other display device with limited dynamic range.

Communication

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sherali Ishrat whose telephone number is 703-308-9589. The examiner can normally be reached on 8:00 AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Boudreau can be reached on 703-305-4706. The fax phone numbers for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-

4750.



Ishrat Sherali

Patent Examiner

Group Art Unit 2621

February 26, 2003



LEO BOUDREAU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600